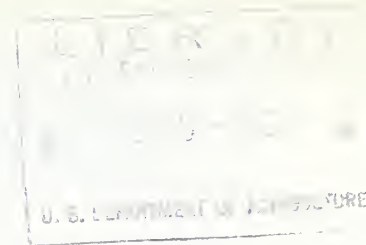


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A RAPID METHOD TO DETERMINE THE  
QUANTITY AND TYPES OF VEGETABLE MATERIAL  
IN GREASE WOOL

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service  
Livestock Division

AMS-217

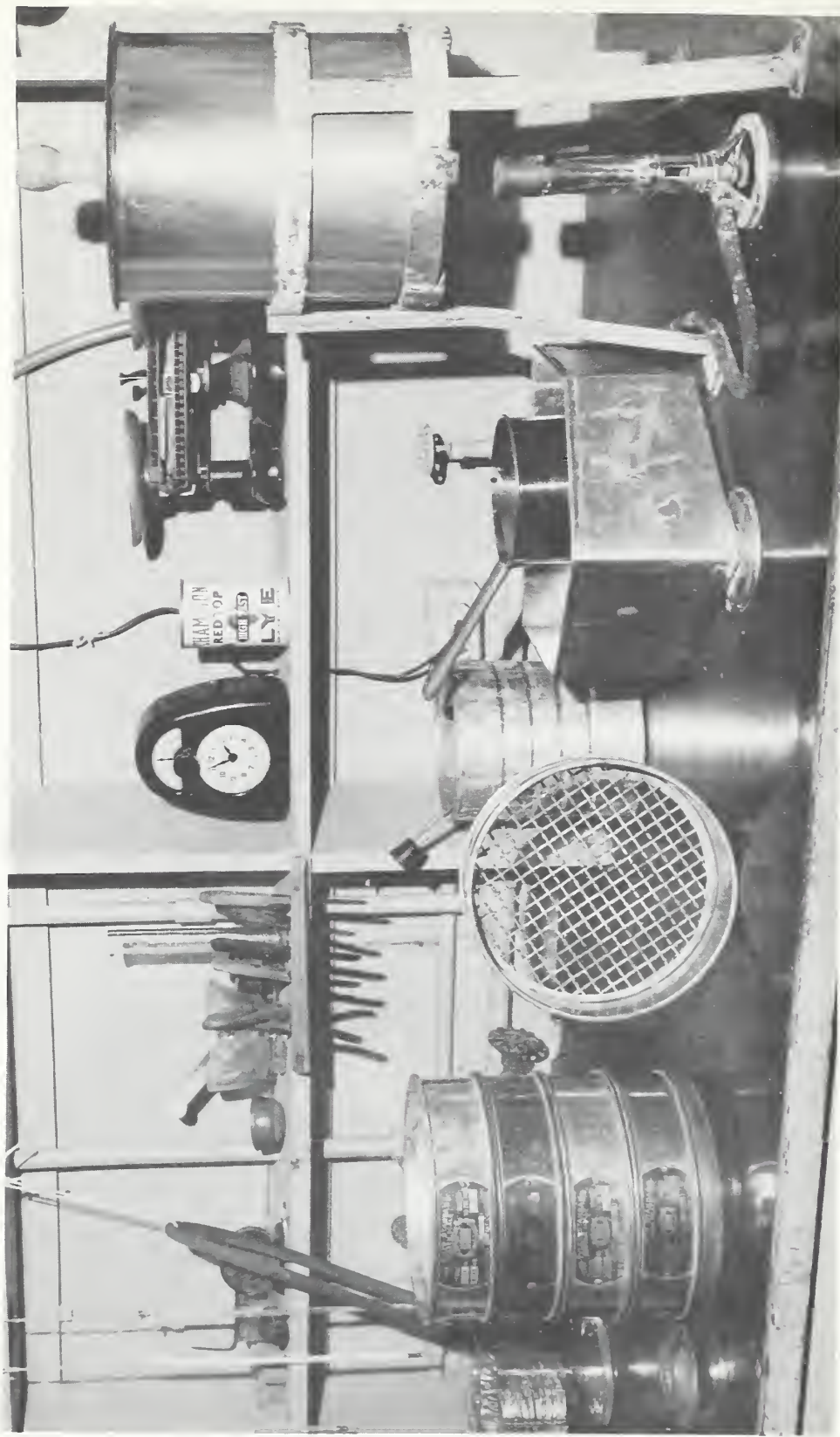


Figure 1.-- Equipment for vegetable matter determination in grease wool. Foreground, left to right: nested screens, top screen, drain, and NaOH (sodium hydroxide) solution and burner. Background: gallon fruit can and stirring rod, household lye, and scales.

A RAPID METHOD TO DETERMINE THE QUANTITY AND TYPES OF  
VEGETABLE MATERIAL IN GREASE WOOL

By Henry R. Keller, Wool Technologist 1/

INTRODUCTION

Grease wool offered on the market is often defective and is discounted because it contains varying amounts and types of vegetable material. Buyers, in most cases, discount on the basis of visual appraisal of wool clips. It is not uncommon for some wool clips to be discounted as much as 5 cents per pound, grease basis, because they contain objectionable vegetable material. The amount and types of such material in a lot of grease wool may vary.

This report sets forth a rapid method of determining the quantity and types of vegetable material in grease wool which will make this information available to a seller or buyer of grease wool.

This method may be used either in the field or in a laboratory and will determine with reasonable accuracy the relative percentages of vegetable material types.

EQUIPMENT AND MATERIALS NECESSARY

To perform this test it is necessary to have available the following equipment and materials:

(a) 4 Standard nested screens, 8" in diameter, 2" deep, and having openings of approximately  $\frac{1}{2}$ ",  $\frac{1}{4}$ ",  $1/8$ ", and  $1/32$ " or  $1/64$ ". These screens are available at most laboratory supply houses or may be home-made. All dimensions are approximate and may be altered to suit the needs.

(b) Sodium hydroxide - the household lye variety is suitable and least expensive. Usually in 13-ounce cans.

(c) 2 one-gallon cans; either stainless steel or fruit cans may be used.

(d) Glass or plastic  $\frac{1}{4}$ " diameter rod for stirring

(e) Scales - laboratory balances sensitive to 0.1 gram

METHOD

Take a 300.0-gram sample of grease wool by drawing random handfuls from representative bag, bin, or fleece. For increased test accuracy draw two or more samples for testing. Place sample in one of the gallon cans. In the

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other gallon can place one 13-ounce can of household lye and add  $1\frac{1}{2}$  quarts of cold water. (This makes approximately a 20% solution.) Heat solution until it comes to a rolling boil.

Pour in enough of the lye solution to cover the wool sample well. Allow to set for approximately 5-10 minutes stirring frequently with rod.

Screens should be nested in order of mesh size, with the coarse mesh on top. Pour dissolved wool sample onto top screen washing continuously with a stream of cold water. Decant sample so that the sand will remain in the bottom of the can. After sample has been poured from can wash residual vegetable material on nested screens vigorously with a stream of cold water. Separate screens and No. 1 (top) screen will contain cockle burrs, if any; No. 2 screen will retain spiral or other burrs; No. 3 screen, sand burrs; and No. 4 screen, miscellaneous shives, chaff, etc. If a few burrs fall through to lower screen, place in proper screen. Wash each type of screened vegetable matter thoroughly with cold water, remove to a suitable piece of aluminum foil or aluminum pan and dry as thoroughly as possible in oven (laboratory or kitchen) without burning.

Weigh each type of vegetable material as accurately as possible to closest 0.1 gram and divide each weight by 300. The resulting figures will give the percentage of each type of vegetable material in the grease wool. Addition of the percentages will give a percentage of total vegetable material in relation to the grease wool.

The method described is not a precision test but will make available a reasonable estimate of vegetable matter types and amounts.

#### Calculations

Original grease weight - 300 grams

Vegetable material weights	Weight (dry)	Percent of <u>grease wool</u>
Cockle burr	2.3 gms	0.77
Spiral burr	4.6 gms	1.53
Sand burr	0.5 gms	0.17
Miscellaneous chaff	<u>3.4 gms</u>	<u>1.13</u>
Total	10.8 gms	3.60



